

CLAIMS

What is claimed is:

1. An endodontic cutting instrument comprising:

(a) a cutting portion, including a non-standard taper angle, which non-standard compound curve taper extends along a predetermined length of a distal cutting portion thereof, and including a standard taper angle, which standard taper angle extends along the remaining cutting portion to a standard size shank thereof, said non-standard taper angle being an angle at which incremental stair step root canal cavities are formed;

(b) a first handle portion having a first color corresponding to the ISO standard color for a standardly tapered endodontic cutting instrument having a same size standard shank diameter corresponding to the first ISO standard color; and

(c) a second handle portion having a color which is not a standard ISO color to indicate that the taper angle is not a standard taper angle.

2. An endodontic cutting instrument comprising:

(a) a first tapered working portion having spiral-shaped cutting edges which define a first taper angle; and

(b) a second tapered working portion having spiral-shaped cutting edges which define a second taper angle.

3. An endodontic cutting instrument as in Claim 2 further comprising:

(a) a shaft portion; and

(b) a tip portion; and

wherein said first tapered working portion extends from said shaft portion to said second tapered working portion, and said second tapered working portion extends from said first tapered working portion to said tip portion.

4. An endodontic cutting instrument as in Claim 2 wherein said first tapered angle is a standard taper angle and said second taper angle is a non-standard taper angle.

5. An endodontic cutting instrument as in Claim 2 wherein said second tapered angle further comprises a plurality of angles different from the first tapered angle.

6. An endodontic cutting instrument as in Claim 5 wherein said plurality of angles form a smooth curved cutting edge portion.

7. An endodontic cutting instrument as in Claim 6 wherein said smooth curved cutting edge portion comprises a compound curve cutting portion with progressively increasing angles toward the tip of the cutting instrument.

8. An endodontic cutting instrument as in Claim 7 wherein said compound curve further comprises a hyperbolic curve.

9. A method of root canal therapy for eliminating step-back procedure while obtaining consistent results comprising the steps of:

- (a) forming a root canal cavity to a desired apical orifice size; and
- (b) enlarging the root canal cavity using progressively larger size endodontic cutting instruments, each having a first cutting portion at a first tapered angle, and having a second cutting portion at the distal tip of the instrument, having a second cutting angle which is steeper than said first cutting angle.

10. A method of root canal therapy as in Claim 9 wherein said step of using progressively larger size endodontic cutting instruments having a first tapered portion and a second tapered portion which is steeper than the said first tapered portion further includes the step of using progressively larger endodontic cutting instruments having said first tapered portion and wherein said second tapered portion includes a compound curve tapered portion with a progressively steeper taper at the distal tip.

11. A method of forming a step-back eliminating tapered dental cutting instrument for improved root canal therapy comprising the steps of:

(a) forming a blank having a desired cross-sectional shape with first tapered sides and edges at a first tapered angle;

(b) forming a second portion with said same geometrical shape cross-section as said first portion, said second portion having a second angle which is steeper than said first angle; and

(c) twisting said blank so that a desired helical spiral is formed along said edges of said blank, thereby forming spiral-shaped cutting edges having a first portion at a first angle and a second portion at said second angle which is steeper than said first angle.

12. A method of forming a step-back eliminating tapered dental cutting instrument for improved root canal therapy comprising the steps of grinding spiral flutes and cutting edges into a tool blank so that a first cutting edge tapered angle is formed along a first portion of said tool blank and a second steeper tapered angle is formed along a second portion of said blank.

13. A method of forming an endodontic cutting instrument as in Claim 12 further comprising the step of programming an automatic flute and cutting edge grinding machine to form said first and second tapered cutting edge tapered angles along flutes and cutting edges extending continuously from said first portion to said second portion.

14. A method of forming a step-back eliminating tapered dental cutting instrument as in Claim 12 wherein said step of grinding a second steeper tapered angle further comprises grinding a compound curve cutting surface along said second portion.

15. A method of forming a step-back eliminating instrument as in Claim 13 further comprises grinding said second portion in the profile shape of a compound curve having a steeper angle at a distal top of said cutting instrument.